

Remarks/Arguments

Attorney for Applicants submits this Letter in response to the Office Action dated June 12, 2008.

With respect to prior election of species, Applicants note Examiner's agreement that Claims 5, 8, 13 and 16 are directed to elected species and, therefore, are being considered herein and are not withdrawn, as prior required.

Applicants note that the Examiner has withdrawn the rejections previously issued in Examiner's Office Action dated October 18, 2007 in view of Applicants' Response filed with respect thereto.

Applicants have maintained all claims in the subject application for the Examiner to further consider the rejoining of the claims upon allowance of the present Group I claims. Claim 17 has been amended to be consistent with the claims presently under active consideration in order to facilitate rejoinder.

The presently claimed invention is directed to a film or a layered product having at least one layer comprises oxygen scavenging compositions consisting essentially of block copolymers having blocks (long polymeric chain segments) formed from a first pre-polymer (P^A) containing cycloalkenyl groups and, further, having blocks (P^B) formed from second pre-polymer comprising thermoplastic, film forming polymer. The pre-polymer forming the first block (P^A) is required to contain cycloalkenyl groups and be present in from 20 to 80 weight percent of the resulting block copolymer. The second pre-polymer (P^B) is required to provide the hard, film forming segment of the resultant block copolymer. The presently claimed block copolymer has been unexpectedly found to act as an oxygen scavenger agent under both ambient, room temperature conditions (ca. +20°C - +30°C) and

refrigerated low temperature conditions (ca. < +20°C to -20°C) as well as exhibit a high degree of compatibility with conventional film forming polymers to provide a desired tack-free, haze-free packaging product using conventional processing equipment.

The sole rejection of the claims under active consideration (with respect to Claims 1-5, 7-13 and 15-16) is made under 35 USC §103(a) over the combined teachings of Ito et al. (USP6458437), Chang et al. (USP 4485228) and Taylor (USP 4038228). It is respectfully submitted that the presently claimed invention is patently distinct from the teachings of the cited references taken singly or in combination, as discussed herein below. Withdrawal of the rejection is respectfully solicited.

The Examiner cites Ito et al as disclosing a heat shrinkable polyester film comprising a polyester elastomer which is a polyester block copolymer. This is not totally correct. A full reading of the Ito et al reference shows that it is clearly directed to the formation of *mixtures* of conventional polyesters polymers with polyester block copolymers (See Col. I. 11-29 and Claim 2), each present in certain specific amounts within the mixture composition. The composition of Ito et al. is taught to provide improved film labels suitable for wrapping around bottles and the like that are substantially free of imperfections.

There are several distinctions between the teachings of Ito et al. and the presently claimed invention.

Firstly, the film product of the presently claimed invention is distinct from that taught and/or suggested by Ito et al.

Ito et al clearly directs one to form films by providing a mixture of a polyester with a polyester elastomer (polyester block copolymer). Ito teaches that their polyester elastomer should be present in limited, minor amounts, preferably limited to 5 to 10 percent. In difference, the presently claimed film product is directed to

comprising a layer consisting essentially of the presently defined block copolymer formed by blocks of P^A and blocks of P^B. Thus, the teaching of Ito et al would not direct or suggest the presently claimed product wherein the layer consists essentially of Applicant's claimed block co-polymer.

Further, Ito et al. require each of their components to be limited to those having certain physical properties not required by the presently claimed block copolymer.

Secondly, the product of Ito et al. is taught to have a utility distinctly different from and not applicable to the block copolymer containing film product of the presently claimed invention

Ito et al. direct one skilled in the art to compositions useful to form films around bottles which are useful as labels exhibiting reduced defects "of wrinkles, shrinkage spots, strains and shrinkage failure." The artisan is not taught nor is there a suggestion of the utility for providing oxygen scavenging properties to the packaged article, as is the utility of the present invention. One skilled in the art of oxygen scavenger technology would not be instructed to aid their technology by the Ito et al. teaching.

Ito et al. utilizes their product as an outside film surrounding PET bottles and the like. Such utility and its position on the outside of the packaging would not be deemed to be within the technology useful for oxygen scavenging purposes.

The presently claimed film composed of a layer of the subject block copolymer has been found useful as an oxygen scavenger for the atmosphere within a package. It is well recognized that such a film needs to be directly or indirectly exposed to the interior environs of a package to thereby limit the exposure of oxygen sensitive packaged materials to oxygen laden atmosphere of conventional packaging.

One skilled in the art would not be directed to the presently claimed product nor look to Ito et al.'s teaching to aid in the production of an oxygen scavenger packaging material.

Thirdly, the film product of the presently claimed invention is composed of a block copolymer that is distinct from and not suggested by the block copolymer utilized by Ito et al.

The Examiner admits that "Ito fails to disclose the claimed alicyclic non-aromatic compound (the (a) unit for the prepolymer (P^A)."

The presently claimed invention is clearly directed to a film product having at least one layer composed of non-aromatic, cycloalkenyl group containing polymers formed from a combination of certain specifically defined pre-polymers, P^A and P^B in certain ratios. Applicants have unexpectedly found the presently claimed product to be capable of overcoming certain problems commonly associated when designed to have low T_g (e.g. lack of scavenger properties at refrigeration temperatures, high tack at room temperatures, difficulty to form into films using conventional apparatus).

Ito et al. fail to teach or suggest the formation of block co-polymers or of segments formed from pre-polymers having cycloalkenyl groups, as required by the presently claimed invention. Ito et al's polyester elastomer is a distinctly different polymeric material that is not suitable for scavenging of oxygen from the environs.

It is respectfully submitted that Ito et al. fail to teach or suggest the formation of block co-polymers useful as oxygen scavenger and does not teach or suggest block copolymers having functional cycloalkenyl groups defined by the present claims.

The teachings of Chang et al does not overcome the defects of Ito et al to direct one to the presently claimed invention.

As stated above, the Examiner admits that "Ito fails to disclose the claimed alicyclic non-aromatic compound (the (a) unit for the prepolymer (P^A)."

The Examiner attempts to overcome the defects of Ito et al. by the teachings of Chang et al. The Examiner proposes that the Chang et al teaching that terephthalic acid (contained in the Ito et al polyester elastomer) and tetrahydrophthalic acid (or its anhydride) are functional equivalent compounds and, therefore, one skilled in the art "would have found it obvious to substitute

tetrahydrophthalic acid (or its anhydride) for the terephthalic acid of Ito.” It is respectfully submitted that the teachings of Chang et al. does not overcome the noted defects of Ito et al. for the reasons stated herein below.

Chang et al is directed to forming a *thermosetting*, high solid content polyester-urethane composition useful as a coating composition. In contrast, Ito is directed to a heat-shrinkable, *thermoplastic* composition. It is well known in the art that thermoplastic compositions and thermoset compositions are distinct and the teachings related to each are distinct from the other. Those skilled in the art of polymer chemistry would not combine the teachings of the cited references, as proposed by the Examiner.

Further, Chang et al teaches that their polyester-polyurethane polyol can be formed when “an organic polyisocyanate is reacted with a polyester-polyol which is formed from the reaction of an organic polycarboxylic acid and a polyol. (4:18-21). It is well known to those skilled in organic chemistry that ester groups are formed by the functional group reaction of a carboxylic acid group with a hydroxyl group. This is the functionality of interest discussed in the Chang et al. reference.

With respect to the polyester-polyol, Chang merely teaches (4:49-64) that it is formed by “reacting an organic polycarboxylic acid or a functional equivalent thereof...with an organic polyol....Diacids are preferred, although higher functional polyacids can be used.” It is clear that the functionality of importance in Chang et al is the carboxylic acid group. Chang et al. teach that *all* organic di- and polycarboxylic compounds are encompassed by their teaching to form their thermoset resins. Chang et al. teaches that the preferred carboxylic acids are “the aliphatic one such as hexahydrophthalic acid or its anhydride”. (4:62-64). Such teaching, directed to an acid having *cycloalkyl* bridging group (not a cycloalkenyl group, as presently required) would direct one away from that presently required. Only by hindsight use of Applicants’ teachings can one create the presently claimed invention from the Chang et al. teaching.

Although a single cycloalkenyl dicarboxylic acid is encompassed in the listing of dicarboxylic acid compounds by Chang et al, it is clear that such teaching is not applicable to support the Examiner’s position of equivalency with the phthalic

acid of Ito et al. to make obvious the specific block co-polymer of the presently claimed invention.

It is well admitted that the formation of polyesters from diols and dicarboxylic acids is well known. Finding of such generic teaching can not be deemed to be readily substitutable into specifically directed teachings. Teachings related to thermoset polymer technology is not generally applicable to teachings related to thermoplastic technology. Teachings related to specific polymer functional groups and/or properties can not be deemed gleaned from generic teachings not related to said functional groups.

There is no teaching in either reference to direct one to form an oxygen scavenger film product, as presently claimed, having cycloalkenyl groups therein that is capable of scavenging oxygen under both ambient, room temperature (ca. +20°C - +30°C) and refrigerated low temperature (ca. < +20°C to -20°C) as well as exhibit a high degree of compatibility with conventional film forming polymers to provide a desired tack-free, haze-free packaging product using conventional processing equipment and still further to provide said properties without causing formation of by-products which detract from the packaged product's quality.

The Examiner cites the teachings of Taylor to support obviousness for the inclusion of a transition metal compound, complex or salt as part of the presently claimed invention. It is respectfully submitted that Taylor does not provide a teaching to support the present obviousness rejection.

Firstly, the teachings of Taylor do not address the defects noted above with respect to the teachings of Ito et al. and/or Chang et al.

Secondly, Taylor directs one skilled in the art to utilize certain transition metal salts for post-use degradation of polymers..

The Examiner states that "Taylor discloses the formation of transition metal salt compounds which improve the degradation of polymers (1:60-2:5, 3:4-13)". Based on this observation, the Examiner comes to the position that it would be

obvious "to include a transition metal in the film...in order to form a film which is capable of non-photochemical degradation of the polymer post consumer consumption."

Those skilled in the art of packaging would not be directed to utilize the teaching of Taylor except under specific application conditions. Packaging must remain in tack for extended periods of time to encompass times of transit, storage and sales.

Applicants have found that the presently claimed film product having at least one layer of the defined block co-polymer can have its oxygen scavenging properties catalyzed by the presence of a transition metal salt, compound or complex and that such catalyzed oxygen scavenging can be done without the degradation of the presently claimed block copolymer. This is a highly desired result.

Taylor's teaching of providing a means of degradation of polymers would direct one away from use of his transition metal salts within the present technology.

In summary, the above clearly shows that the teachings of the cited art of Ito et al., Chang et al. and Taylor do not each singly or in combination teach nor make obvious the presently claimed invention. Ito et al. is directed to a mixture of a polyester and a polyester elastomer wherein the latter is distinct from that presently claimed. Chang et al is directed to formation of thermoset polymers having a portion of the polymer composed of a polyester formed from any dicarboxylic acid compound. Chang's teaches that any such compound may be used and mere inclusion of one that has a cycloalkenyl group is not sufficient to teach equivalency as suggested by the Examiner. Finally, Taylor teaching that the inclusion of a transition metal salt into a polymer composition would cause degradation of the polymer product is contrary to and direct the artisan away from using same in packaging technology.

It is respectfully submitted that Applicants believe that the Examiner will agree that the presently claimed invention is free from formal and art rejections and, therefore, in condition for allowance. Such action is respectfully solicited.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Howard Troffkin", written in a cursive style.

Howard Troffkin

Attorney for Applicants

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cc: M.Quatt